SEPTEMBER 1961

THE AIR LINE PILOT

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Chicago Helicopter Airways photo

Helicopters offer the greatest potential of all types of present-day transportation used by passengers between airports and metropolitan areas, according to a special study made for the FAA. While presently accounting for only a small proportion of airport transportation, the report pointed out, the helicopter is showing rapid growth in both Chicago and New York City. The reason the helicopter shows greater promise is primarily because other types of transport must depend on existing street and highway systems, while the copter possesses a degree of flexibility.

By CAPTAIN CHARLES E. SULLIVAN

WHEN ILLNESS CUT SHORT A PILOT'S FLYING CAREER

The career problem of a thirty-six year old FAL captain.

THE symptoms that are associated with my particular case of heart disease, started to occur about two weeks before I was hospitalized by my doctor in Omaha, Nebraska. The main events happened on my last trip into Kansas City, while I was showing the agents a method for removing snow from the top of a DC-3. The next day, the second main event happened while I was removing snow from the driveway at home. It took about five shovels full to bring on the pains. I still wasn't willing to admit anything serious was wrong, but my wife, Helen, dialed the doctor's number for me; I was in the hospital about an hour later.

In the beginning, as I was lying in the hospital, all I could do was feel sorry for myself and wonder what blow the cruel hand of fate had dealt me. I had worked eight years as co-pilot before becoming a captain, and then this had to happen. Then as I started thinking and looking around, I realized that I really wasn't so bad off. Also, why not accept it? There wasn't anything I could do about it anyway. I had Mutual Aid, Loss of License and sick leave. I have to admit, it was a very comforting thought. In fact, the knowledge of having the protection was about the greatest therapy I could have had. It might be interesting to note that about 90 per cent of the pilots that visited me in the hospital had imaginary chest pains.

After leaving the hospital, I had two weeks of lying in bed and slowly increasing light activities. During that two weeks my wife and I had a lot of time to talk the situation over. It didn't take very long for us to realize that I would be convalescing for a long time, and that possibly never be able to fly again. Also with the sick leave and insurance program we had, it became quite evident that we would have to take advantage of it while we could. That meant cutting down our expenses and getting the major debts paid while we could. The opportunity came when the doctor said a fishing trip was in order. In a time of need you really find out how many and what good friends you have. They appear from everywhere; people you thought were casual friends or many that were acquaintances. When they start coming to your aid, you find out a lot of things. I can say that the friends stayed friends, but we found a lot more we will cherish the rest of our lives.

We stored our belongings in the basement of one of these newly-found friend's house. Taking only what we would need for three or four months, the time we thought it might take to recuperate, we headed for Montana, where my wife and I had met and were married. We stayed at a long-time friend's house in Billings, before we found just the place. It was a nice cabin on a ranch near Nye, Montana. Eighty miles from "no-where," we again found new friends that we didn't know were there. They came from everywhere. There were times that we had twenty people in that cabin. After four months of fishing, finding these new friends and making new friends, it became quite evident that I wouldn't be returning to work for a year from the time I became ill, so new plans had to be made. We decided to treat the situation just as if I could never fly again. This meant making a new life for ourselves. By this time, thanks to sick leave and Mutual Aid, we had all of our debts paid and money in the bank. We did this by living on the budgeted amount we would have to live on after sick leave pay was over. We used sick leave pay and the weekly benefit insurance payments to pay our debts and put money in the bank.

We decided that since I couldn't work, I should return to college for the rest of the year. The doctor said that it was okay to try. We moved to Bozeman, Montana, where I enrolled in Montana State College. As I enrolled, my first thought was that the rest of the students were born the year before I graduated from High School. After six weeks of college, I found out several things of importance. The most important fact was that I had been out of school a long time; maybe too long. Next important was the fact that I didn't have the time (eight years to become an independent architect), to spend learning a new profession. I have a wife and two boys for whom to earn a living! I guess you might call this the method of trial and error. What kind of a future to look for is a most difficult decision to make. We decided to look for some kind of business in which to invest.

It has taken a long time to get to the meat of this article. However, I want to write this for the benefit of those who might encounter the same situation — being forced to face possibility of not returning to the flying profession. Normally, people who encounter the situation of losing their profession because of health, have a much harder time coping with the problems that I have had. Most of these people do not have the protection that I have. They or their wives have to go to work in a very short time. They have a family to raise, the same as I, except they do not have a means of laying off for a while to recuperate. Also, they have to take the first type of work they can find. If most pilots are like me, they know nothing else.

Thanks to our negotiators, sick leave pay provided the means to pay off the outstanding debts and put a little money in the bank. Mutual Aid benefits provide the time to get well while seeking a new field, and at the same time provide for the family as well. Loss of License is the backer-upper. It provides enough to live on for enough time to make a go of anything a person decides to do whether it be business or training for a new occupation.

I can see now that no matter what a person is doing, he should prepare for the future. I did not have to take a day of sick leave in my life, yet one day I was working, the next day I was not. Much to my chagrin, I confess I hadn't prepared myself as I should. The one place of foresight I had, thank God, was to protect my family's future with Mutual Aid and Loss of License. I cannot stress enough the importance of this protective type of insurance in our profession. If nothing more, it gives a person time to think and plan a little without being under pressure.

I would like to repeat as a person who knows, Mutual Aid and Loss of License are the greatest bargains you will ever find.

special report

CIVIL AVIATION IN THE U.S.S.R.

With the Russians eyeing international air routes and dickering for landing rights in the U.S.A., questions are arising about Russian civil aviation. In an unprecedented action, the U.S.S.R. invited two I.F.A.L.P.A. representatives to study its civil aviation. This is a first hand report on Russian aircraft, training programs, operations, pilot compensation, medical programs, etc.

By C. N. SAYEN, President
Int'l Federation of Air Line Pilots

PILOTS are well regarded in the Union of Soviet Socialist Republics and enjoy a position in society comparable to that of scientists, successful literary figures, miners and metal smelters, and the heads of large trade unions. They enjoy prestige and special privileges. They are carefully selected, well-trained, frequently inspected, given physicals every three months and before every flight, and are assured a ground job in aviation and a pension on retirement. Their working conditions and rest periods are regulated and they receive sixty days vacation or leave each year. They accept more regulation than pilots generally and seem to have surrendered more of their individual prerogatives in their working and social life.

I have recently had an opportunity to make a survey of the place of the civil pilots in the society of the U.S.S.R. Captain C. C. Jackson, Executive Secretary of the International Federation of Air Line Pilots Associations and I visited the U.S.S.R. and traveled more than 3,000 miles within the country studying the civil aviation structure at the national, territorial and local level. We flew with the pilots on their regularly scheduled flights on the aircraft being utilized in international and domestic air transportation, visited with them at the airports, in their rest houses on layovers, and in their homes. We talked to their supervisors—the officials of Aeroflot at the national, territorial and local airport level—and with their trade union representatives at each level.

We inspected the airports along with their related terminal area, approach and landing facilities from the international fields to the territorial fields and to the grass strips still being utilized by large and small aircraft. We visited the air traffic control centers, meteorological offices, and the union headquarters. In short, we had an opportunity to see pilots at work in the cockpit, to discuss their problems with them on the ground, to survey their union and the place the pilot plays in it, and to see the pilot at home and at play. The following is a short summary of some of the things we learned.

The Organization of Civil Aviation

All civil pilots in the U.S.S.R. are employed by Aeroflot, the state organization for the operation of all civil aviation. Whether the pilot is an air line pilot flying jet transports in international service or a crop duster assigned to one of the collective or state farms, he is employed by Aeroflot. Aeroflot is essentially an operating organization and its officials have the responsibility for the management of all civil aviation operating enterprises. Aeroflot operates all air line schedules, training, airports and airport facilities, housing and education of civil aviation employees, the air traffic control system, the airport passenger facilities, the rest houses for pilots on layovers, and other aviation facilities. It does not, however, build any airplanes or construct any airports.

All of the operating officials of Aeroflot whom we met at the national, territorial or local level were pilots. On inquiring of General Bashkirov, Deputy Director of Aeroflot, concerning this policy of Aeroflot management, he told us that Aeroflot believes that the management of the company should remain in the hands of qualified operational personnel.

Organizationally, Aeroflot is divided into air wings and each wing may have several squadrons depending on the size of the particular wing. We were informed that there are currently 300,000 people working in the operating end of civil aviation in the U.S.R.R. We were never able to determine exactly how many pilots could be classified as air line pilots since we were told no distinction is made between air line pilots and other pilots, and no one knows exactly how many civil pilots there are in the country.

An estimate of the number of air line pilots can be made from an analysis of the schedules between the major cities. For example, there are twenty-five flights each way per day between Moscow and Leningrad, probably the two major cities of the U.S.S.R., in 100 passenger aircraft. There are five to seven flights per day—in 100 passenger airplanes—between Tbilisi (Ti-

C. N. Sayen photo

IFALPA President C. N. Sayen (second from right) and Captain C. C. Jackson, Executive Secretary (first man on the left) with representatives of Aeroflot. Building in background is an airport terminal.

flis), the capital of Georgia, a city of 800,000 people, and Moscow.

There are two major variables, however, in making such an estimate. The Russians evidently design their air line schedules with the objective of moving a certain number of people during a given time period, rather than providing schedules necessarily adapted to public demand or travel habits. The schedules may, therefore, be spread throughout the day rather than grouped at certain periods as in the U.S.A. Planning, we were told, is done on the basis of a 75 per cent load factor. During the summer months, therefore, most airplanes were operating between a 90 and 100 per cent load factor and passengers seemed to be accumulated at terminal buildings where some rest facilities are provided and may have to wait for considerable periods for the next scheduled flight. Also, most flight crews contain only two pilots. On the other hand, a great deal of flying is still being done in small aircraft of the Canadian Beaver type which are used for passenger transportation in rural areas, for the movement of freight, as hospital aircraft, and so forth, and DC-3 type aircraft (LI-3's) which are utilized in many rural areas from sod fields.

The Airport Commandant

The entire supervision of civil aviation activity in a subdivision of Aeroflot is under the Airport Commandant. When we arrived, for example, at Leningrad Airport to inspect its facilities, we were introduced to General Alexi Zolotov. Ordinarily one would assume that General Zolotov was what we would describe as the Airport Manager. However, we learned that the Airport Commandant is not only the airport manager but is also the Chief Pilot for all flying in the area, the chief of air traffic control, the head of maintenance, the head of sales and promotion for Aeroflot in the area and, in addition, has charge of the housing and education of all civil aviation personnel working under his supervision. In all of these activities, he is actively assisted by the local trade union representatives. In every case, the Airport Commandants that we met were pilots of long experience.

Aircraft Types

Three large turbo-prop aircraft and one medium-size jet form the backbone of Aeroflot's fleet for long and medium range operations. The largest aircraft flying, designed for the longest haul routes and for flights from Moscow to New York if a bilateral agreement is concluded, is the TU-114. This aircraft of about 400,000 lbs. maximum gross weight is probably the largest civil transport now in use in the world. It is powered by four large turbo-prop engines of an estimated 12,000 ESHP each and each turning two counter-rotating propellers. The aircraft, presently in use on long-haul flights to the far eastern regions of the U.S.S.R. is capable of carrying 170 passengers in mixed configuration and up to 220 in all tourist and claims a speed approaching 500 mph. It is divided into numerous compartments ranging from high density tourist sections to private berths. The cabin has two decks and the lower deck contains large cargo compartments and a very large galley in which food is prepared and raised to the first deck by dumbwaiters.

The IL-18 is a four-engine turbo-propeller airplane similar to our Lockheed Electra in size, design and speed. The most significant difference is the round tip propellers contrasted to our paddle props and which are turned at a somewhat slower speed. The aircraft carries about 100 passengers in tourist configuration which is the standard seating arrangement on most Russian aircraft.

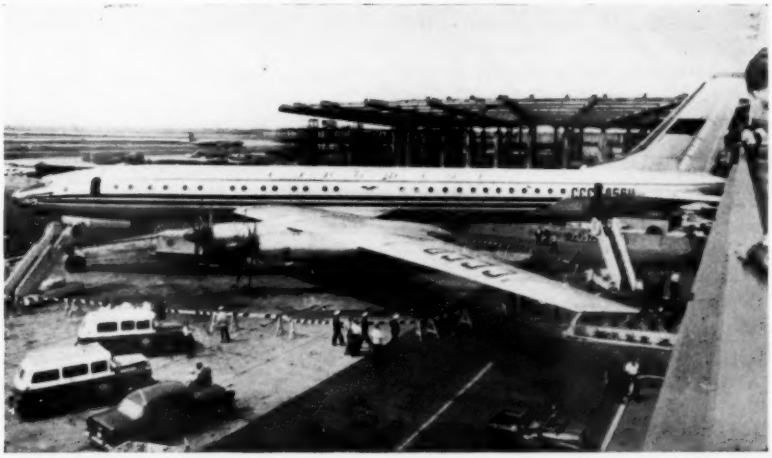
The AN-10, a 120,000 lb., 400 mph. high wing turbo-propeller aircraft can carry 100 passengers and is capable of operating from sod fields. The aircraft has a large high wing on top of a very large and wide fuselage. The high wing keeps the propellers clear of any ground obstructions and combined with a very strong gear attached to the bottom of the fuselage enables operations from the grass fields still used in the U.S.R.R.

The only large jet transport currently in service is the 100-passenger (tourist configuration) two-engine TU-104, of which a series has been built. This aircraft is utilized on the international routes throughout Europe and on the domestic services between the large cities. It is in the 165,000 lb., 500 mph. area.

A smaller version of the TU-104, the TU-124—a two-engine jet—is about ready to go into service on shorter routes on internal service. It will carry about 45 passengers.

On territorial routes, many small two-engine aircraft and single-engine aircraft are utilized. The AN-14 is a two-engine piston aircraft which looks like our Martin 404 but is seven or eight thousands pounds lighter in maximum gross weight. The LI-2 is identical to our DC-3. A number of single-engine aircraft resembling the Canadian Beaver are used extensively for all sorts of passenger, hospital, agricultural, and other civilian services.

Red prop-jet TU-114



RUSSIAN TU-114, the largest commercial airliner in the world, is the type Aeroflot would probably use on a Moscow to New York flight. It is powered by four turbine engines each spinning two counter-rotating propellors. The weight is about 400,000 pounds. It claims a speed approaching 500 mph.

United Press International photo

While we did not see it, there is supposed to be a cargo version of AN-10 called the AN-12. Some T-104's are also utilized for moving fresh vegetables and fruits from the south to the north. Otherwise we did not see much evidence of specialized cargo development of aircraft for civil use and were informed that the plan is to move all passengers by air and all cargo by ground within a few years.

Crew Complement

Generally the larger transport aircraft of the U.S.S.R. such as the TU-114 or the IL-18 and the AN-10 or the two-engine jet, the TU-104, are flown by a crew of five: two pilots, navigator, radio operator and flight engineer. A small jet, the TU-124, a two-engine aircraft which will carry about 45 passengers, will eliminate the flight engineer and may combine the navigator and radio operator functions. Smaller piston aircraft with two engines, such as AN-14 or LI-2 (identical to the DC-3) are flown by two pilots.

We were informed that both the pilot in command and second in command receive similar training. We saw no evidence of a plan or desire to reduce the size of the flight crew except on smaller aircraft. Also, the "specialist" in the flight crew, such as the navigator, radio operator, and engineer, did not seem concerned that technological development might abolish their job but assured us that in any such event, they would be retrained for another position. Since pilots are widely utilized in supervisory positions, as air traffic controllers, and in many other jobs, evidently with the present rapid expansion of Aeroflot, there is sufficient opportunity for the individual who desires to retire or is disqualified for medical reasons. In these situations, an individual may draw his retirement income in addition to the income which he receives from the ground position. For example, the Airport Commandant at Sochi on the Black Sea was a pilot who had been grounded for physical reasons, attended aviation training school and is now the Airport Commandant for this area.

TUPOLEV Tu-114 has four turbo-prop engines rated at 12,000 eshp. Wing span is 177 ft. and over-all length 154 ft. Gross weight 396,900 lbs. Maximum speed is 550 mph and service ceiling 35,000 ft. It has an estimated range of 5,600 nautical miles. Nose wheel in above photo is on a Tu-114. Plane carries 170 passengers and a tourist version seats 220. Note glass "greenhouse" nose compartment on plane for the navigator.

C. N. Sayen photo

Pilot Pay

By Russian standards, pilots are well paid. The jet pilot, for example, can make six or seven times the amount paid the average worker on a collective farm or two to three times that paid to doctors. The average pilot, I estimate, would make almost four times the amount paid an average worker. Pilots, as in most countries, are compensated by a formula system of pay and this combined with other differences in the Soviet system makes exact comparisons difficult. Following, however, is attempt to describe the system and provide some simple means of comparison.

Provisions for payment of pilots adopted in late 1960 provide that a pilot shall receive (1) basic salary, (2) pay for mileage, and (3) bonuses for work without accidents and strictly according to schedule. Salaries depend on the type of plane or helicopter the pilot is flying and his status. Before going any further, I should point out that a ruble is worth about $1.10.

The base salary of a first pilot on heavy piston aircraft is 168 rubles per month and on jet and turbo-prop aircraft, 200 rubles. On "second class" piston aircraft, it is 138 rubles and on jet and turbo-prop 164 rubles. On

"third class" piston aircraft 120 rubles and on jet and turbo-props 143 rubles.

In addition to the basic salary, the flight personnel receive extra pay which depends on the hours in the air, the type of plane and the condition of flight.

The extra pay per hour is divided into the following groups: On TU-104 jet aircraft from 5 rubles, 20 kopeks (roughly $5.50) to 9 rubles, 50 kopeks (roughly $10.50). On IL-18 turbo-prop aircraft (roughly the size of our Electra) from 3 rubles, 90 kopeks (roughly $4.30) to 6 rubles, 30 kopeks (roughly $7.00). On two-engine aircraft from 3 rubles, 10 kopeks (roughly $3.45) to 6 rubles, 30 kopeks (roughly $7.00).

Flights over routes with normal conditions are paid according to the first group which is the lowest. Flights over mountain areas are paid according to the second and third groups. Aerial work services flying higher than 5,500 meters are paid according to the fifth group. Flights on piston aircraft in Arctic regions and the Antarctic are paid according to the seventh group. The hourly rates in all its service are relative to the speed of the aircraft.

The rates per kilometer for night flights increase by 30 per cent for the crew members and 50 per cent for the stewardesses. In addition to base pay and flight pay, the crews in "haulage aviation" may receive up to 30 per cent of salary for fulfilling monthly plans without accidents and for good on-schedule operation. Stewardesses may receive bonuses.

The pay of other crew members is established in the following relation to the pay received by the first pilot.

	On piston aircraft	On jet and turbo-prop aircraft
Second Pilot	70%	75%
Navigator	60%	75%
Air Mechanic*	60%	75%
Air Engineer*	60%	60%
Radio Operator	50%	50%
Stewardess	20%	20%

* An "air engineer" is a graduate of an engineering college and an "air mechanic" is a mechanic. In their terms, a "flight engineer" would be an engineering school graduate.

Under the foregoing formulas, the first pilot on a jet aircraft in the Central Regions of the country flying 54-60 hours per month would receive 500-550 rubles ($550-$610) and the first pilot of a piston aircraft receives 370-400 rubles ($410-$445) a month for 90 hours of flying. (It should be pointed out here that a flying hour in the U.S.S.R. means from take off to landing and not block to block as in the U.S.A.) The flight personnel in the remote and desert regions are paid higher salaries in comparison to the personnel in the European part of the country. For example, salary and premium in the far north are 1.7 times higher.

The Red's IL-18 *C. N. Sayen photo*

ILYUSHIN Il-18 uses Ivchenko AI-20 engines rated at 4,000 eshp. Wing span is 122 ft. and over-all length 117. Gross weight 124,500 lbs. The plane is in the 2,600 mile range and has a service ceiling of 30,000 ft.

Comparison of earnings between countries is an extremely difficult matter with which economists have struggled for many years. Such questions as cost of living, standard of living, quality of product, and many others must be considered. The following are a few miscellaneous facts which will help make a comparison with the U.S.A. more realistic:

▶ The Russian pilot is not permitted to pay more than 3½ per cent of his annual income for housing and this includes utilities. Taxes and other miscellaneous deductions will probably run about 10 to 11 per cent of salary. Medical care is either free or at very low cost. Education of children even through the university and post graduate level (provided they qualify) is paid for by the State. Vacations are subsidized. On the other hand, the cost of consumer goods as we noticed them in the shop windows, restaurants, and so forth, were very high, with a good pair of shoes, for example, costing $20 to $30, a small bottle of vodka over $3.00. Some pilots have private cars but they are not common among the populace.

▶ The following are some examples of comparative income levels: Doctors may earn up to 240 rubles per month; an air technician (trained mechanic) 150 to 200 rubles per month if working on jets, 120 to 150 rubles on pistons; an elementary teacher 170 rubles per month; a collective farmer about 80 rubles per month but with some extra allowances on food, etc.; a state farmer about 100 rubles with some food allowances. A jet pilot flying a TU-104 on international runs 60 hours (off to on) per month and receiving the safety bonus could make about 670 rubles (about $745). His copilot 500 rubles ($560), flight engineer 500 rubles ($560), radio operator 335 rubles ($370), navigator 500 rubles ($560), stewardess 134 rubles ($150).

Flight Hours and Working Conditions

Flight hours are regulated in accordance with the type of aircraft flown. For turbo-jets, such as the TU-104, there is a maximum of 65 off to on flying hours per month, seven hours in one day. Working hours, defined as one hour before take-off, all time at intermediate stops, and one hour for debriefing (layover time is not counted), may not exceed 12 hours in one assignment or 175 hours in a month. There is a minimum guarantee of at least five calendar days off per month.

On turbo-props, there is a maximum of eight hours per day but provision for exceptions, in some cases, up to 10, and a maximum of 100 hours per month.

We were told that exceptions to the flight hours and working hours of pilots may only be granted with the approval of the Central Committee of the Civil Aviation Trade Union in Moscow.

Vacations and Pensions

Pilots are given 60 days vacation per year with full pay, and the pilots with whom we talked indicated that often 30 days are given in the summer and 30 days in the winter. These vacations are often taken at one of the

C. N. Sayen photo

AN-10A, each engine develops 4,600 eshp. Service ceiling is 30,000 ft. Plane carries 85 to 100 passengers. The high wing design is well adapted to the grass fields still found on many Russian airports. Weight is an estimated 120,000 lbs.

Black Sea resorts or sanitoria. If a pilot is under orders from his medical officer that he requires rest or some other form of physical rehabilitation, he may be sent to the sanitoria at no expense. We were told that a full month's vacation at one of these resort areas would cost 95-160 rubles per month in winter and 150-180 in summer. This includes all expenses for rooms, meals, etc. However, there is a system under which certificates are granted for these vacations or visits to the sanitoria so that the cost is reduced to about 30 per cent of normal cost, and the cost of a month's vacation at a rest house on the Black Sea would be approximately 60 rubles.

Full pensions for pilots are provided after 25 years of service, but a year's flying on a turbo-prop or turbo-jet aircrafe counts for two years of service. The maximum pension after the qualifying period of service is 120 rubles per month. The pilot, on retirement, is guaranteed a ground job in civil aviation and may receive his pension in addition to compensation for such employment. Certain other benefits, such as reduced rates for vacations, transportation, and so forth, are granted to retired persons by the State. In the event of physical disability of a pilot, a different type of pension under different conditions is granted the pilot, but we were told it still amounts to 120 rubles per month. We were told that a pilot having qualified for a pension may retire on his own decision or retirement, of course, may be for medical reasons.

Physical Examinations

While we did not investigate each specific medical standard required of pilots, we gathered the impression that the standards were similar to those required in other countries with the exception that medical examinations were much more frequent. Pilots are given a physical examination every three months. In addition, there is a check-up by the airport doctor prior to every flight and there is a review before a medical board annually. There seems to be great emphasis on preventive medicine and, if any difficulty occurs, the pilot is put under medical care and may be sent to one of the sanitoria or rest houses for recuperation under medical supervision. Rest houses for layovers were also under the supervision of a doctor.

In discussions with one of the doctors, who was a member of the Civil Aviation Medical Research Division, we were told that they had conducted research on flight crew member fatigue from the operation of turboprop and jet aircraft. Examinations of pilots before flight, in flight, and after flight were conducted, and while they were still analyzing some of the results, they had reached the conclusion that 6-7 hours (off to on) per day on a TU-104 were sufficient and 60-70 hours per month. They had also conducted research on the question of a compulsory chronological retirement age and had come to the conclusion that age was not a criterion of medical fitness or proficiency and that "retirement is a trade union problem, not a medical one."

Layover Facilities and Uniforms

Pilots on layovers are usually housed and fed in a rest house furnished by Aeroflot. We visited one of these rest houses and talked to its director and the flight crews from many points in the country. The rest house itself is a large apartment type building and, like most similar facilities in the U.S.S.R., it is under the direction of a doctor. The rule seems to be one flight crew to a room and depending on the size of the particular crew, there might be three to five crew members sleeping in one room in what, by our standards, would be considered very crowded conditions. The rest houses also had a dining room for the crews, television room, and recreation facilities. The cost of uniforms for flight crews is shared, 50-50, by Aeroflot and the crew member. Blue uniforms are worn by domestic crews and a brownish sort of uniform by crews flying in international air line service.

Housing and Education

As mentioned previously, the cost of housing is established at 3½ per cent of earnings. Housing is allocated to each employee by the Administration and the Trade Union and the pilots generally live in large apartment houses located near the airport or in the city nearby. There is a great shortage of adequate housing and construction of tremendous apartment houses is in evidence everywhere.

We visited several pilots' apartments. In two cases, the family consisted of the pilot, his wife, and a teen-age child. The apartment contained three rooms each of approximately 100 to 120 square feet of living space.

We also were invited into the private home being built by a navigator and his wife. In general, there are very few private homes and this was an innovation. The government had allocated a piece of land near the airport on which private homes could be built for personal use and a number of small frame houses were in various stages of construction. The navigator's house was a small frame two-story cottage with approximately 800 to 1,000 square feet of floor space on two floors divided into five rooms. Under the law, the house may be built, occupied, and sold to another person but may not be rented.

Kindergartens, primary, and secondary schools are generally built close to the housing development for the particular airport or industry. Since most wives also work, the children are kept in nurseries or kindergartens built nearby which are operated by doctors and teachers. (Seventy per cent of the doctors in the U.S.S.R. are women.)

C. N. SAYEN (left), C. C. Jackson, and an official of Aeroflot shows the IFALPA observers Moscow; the Kremlin is in the background.

Admission to a university is by examination. Students who qualify receive free food, lodging, and books plus a monthly stipend ranging from 35 rubles the first year to 50 in the fourth year. Bonuses are paid for good grades. Technicians are trained in special schools and are generally secondary school graduates with the last two years spent on technical courses.

Operations and Equipment

This article is devoted primarily to the industrial and social conditions of pilots in the U.S.S.R., however, a few miscellaneous points regarding operating problems, facilities, and standards may be of interest.

A center-line approach lighting system is becoming the national standard with a Calvert type installed in four directions at Vnukovo Airport in Moscow. These particular installations have 3,000 feet of the Calvert type system with center-line lead in lights extended back for four kilometers. The approach lights have nine intensity settings and condenser discharge lights to within one kilometer of the threshold. Vnukovo also has Russian type ILS and GCA in four directions. Another Moscow airport Scheremtyevo has ILS, GCA, and approach lights in two directions.

Visibility and ceiling limits quoted to us were: for jets—take off visibility—one kilometer—no ceiling; landing—visibility—1½ Km and 120 meters ceiling. For pistons—take off—visibility—½ Km.—no ceiling; landing—300 meters visibility and 50 meters of ceiling. A "sliding scale" principle applied on the foregoing.

On trunk routes, all flights over 200 meters operate on a controlled basis. The principal navigation aids are non-directional beacons backed up by fan markers. Great accuracy was claimed for radio compasses (to ½ degree). During thunderstorm activity when compasses were erratic, a combination of airborne and ground radar is employed.

We were told that before being placed into airline service, new aircraft are given three tests (1) a manufacturer or plant test, (2) a government test and (3) an exploitation test by being assigned to cargo flying for a period of time.

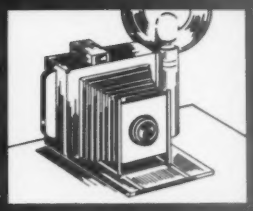
An anti-collision device has been in use for some time. It seems to share some circuits with the weather radar and has about a four-inch display, side by side with the radar. The device is supposed to have a 30 mile range and scans 60° either side of the forward center line and 30° up and down. A red light to the side of the radar installation comes on when an aircraft enters the field. The pilot then checks its position on the scope. If after a suitable interval, the pilot does not take avoidance action, the autopilot will automatically initiate such action. We saw this device in an IL-18 and have asked for further technical data on it.

Three engine ferry flights, we were told, are not flown.

The "plan" is to move all intercity passengers by air and fares are being reduced. For example, the fare from Tbilisi to Moscow was "International Pullman"—41 rubles, ordinary Pullman 37 rubles, air fare 37 rubles. Generally, fares for regional services were 3 kopeks per mile (3.3c) on short haul and 2 kopeks per mile (2.2c) on long haul.

This is a very brief description of the position and problems of a pilot in the U.S.S.R. More details of his relationship with his trade union and other areas will be explored in a subsequent article.

TU-104s are two motor jets each engine developing 14,880 lbs. thrust. Wing span is 114 ft. and over-all length 121 ft. Gross weight 120,152 lbs. Maximum speed is 560 mph and service ceiling 39,000 ft. Range is said to be 1,988 miles. The engines are housed in wing root nacelles. *C. N. Sayen photo*



The ALPA Camera

Some Highlights and Sidelights of the News and ALPA in Pictures

Associated Press Wirephoto

PAA CAPTAIN Carl Ballard (center) describes the hijacking of his PAA DC-8 on flight from Mexico City to Guatamala City, August 9. A gunman forced Ballard to fly to Havana. F/O Samuel Enfield is at the left.

American Airlines photo

CONVAIR 990 takes off from Lindbergh field in San Diego for the first time in air line markings. American Airlines will take delivery of first 990 later this year for service in 1961.

United Press International photo

CREW MEMBERS of Continental's 707 which was hijacked August 3, ending with the surrender of the hijackers in El Paso, Texas. (L. to r.) Captain Byrol Rickards, passenger service manager Louis Finch, 1/O Ralph Waggoner, and 2/O Norman Simmons.

Seaboard World Airlines photo

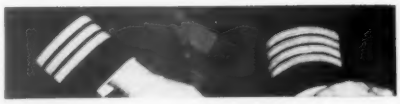
CANADAIR swingtail CL-44 cargo which Seaboard World Airlines is ordering for North Atlantic run. Five CL-44's have been ordered.

Associated Press Wirephoto

DEADLIEST HIJACKING attempt took place August 2, in Chico, California, when a berserk gunman tried to take over a Pacific Air Lines DC-3 which was about to take off. Captain Oscar Cleal, Jr. (right) was shot in the head and may lose sight in both eyes. The gunman shot passenger agent William Hicks and was subdued by co-pilot Allen Wheeler (left) who fought with the gunman until the police arrived. The control tower, which had been in communication with the plane, alerted the police.

United Press International photo

JT8D Pratt & Whitney turbofan engine which will power Boeing 727. Engine weighs 2,994 pounds and develops 14,000 pounds of thrust.



PILOTS, AS ONE PILOT SEES THEM

Pilots do have personal problems—a pilot tells doctors what they are

by HOWARD M. CONE
Captain, PAA

IT is assumed that you gentlemen will have to deal with pilots while pursuing your profession. It might be of help for you to know not only what the pilot eats, but also what is "eating" him. From my position as a pilot I shall try to review some of these points.

As one looks around at the men at a pilots' meeting there seems to be no common denominator. They are of all sizes, shapes, ages and attitudes. After knowing them, one may say that they seem to be individualistic, opinionated and self-confident, also that they have the same weaknesses, temptations and faults as persons in other occupations. They seem, as a group, to be continually dissatisfied—not really unhappy, but quite ready to indulge in criticism of their company, their union, their schedules, the FAA, and maybe even their doctors, but seldom of themselves.

This dissatisfaction is difficult to understand because pilots are relatively well paid and appear to have a considerable amount of free time. It may be that flying an airplane *well* does not fulfill any creative drive that a man may have. Completing a well-run trip may be more similar to driving a golf ball well than to writing a book or designing a bridge. That may be why (aside from the sense of insecurity of their job) many pilots run businesses on the side. Others may paint, sculpt or do woodwork. For recreation some may golf, play tennis, sail or ski. The spare time itself may contribute to their sense of usefulness or dissatisfaction. They become nerve tired rather than muscle tired in their work, which can sometimes lead to difficulty in sleeping. In spite of these critical comments, pilots are basically a healthy and well-adjusted lot.

Pilot and management relations

Although pilots may be critical of their company and bosses, they are loyal and do like their jobs. For example, when the junior men have been furloughed, more than 90 per cent returned when recalled a year or two later. However, one may hear some of the following criticisms of the company:

1. There should be a more personal relationship between the line pilots and their superiors. A pilot may go for years and never see his chief pilot or operations manager. This brings the question: is one pleasing or displeasing his boss? How can one or two bosses know and offer a personal comment or commendation to each of six hundred men that come and go at all hours?

2. There should be a more receptive ear for recommendations and ideas, the suggestion committee system notwithstanding.

3. There should be more acceptance of ideas and recognition of their submission. Many suggestions are submitted without ever being acknowledged. This may be a valid criticism, but it should be remembered that few of the problems and their proffered solutions are new. Some pilots still continue to offer suggestions in spite of the above, but many have become disillusioned and do only the minimum required.

4. Another complaint is that pilots are scheduled or flown according to the need and by the book, rather than according to the personal needs of the pilot, or flight time limits which seem reasonable to the pilot. This may be a just criticism, sometimes brought on by peak loads, geographical limitations, layover considerations and economic reasons. Oftentimes strict interpretation of the contract (intended to protect the pilots from an inhumanitarian corporation) brings on severe inconveniences and economic penalties to the pilots.

It sometimes gets to the point where the company will give all that's in the contract and no more; and likewise the pilots may do only the minimum required to complete the schedule safely. This can be contrasted with the pre-union days when pilots were kept on the payroll during considerable periods of illness, and nearly all requests for time off-schedule for valid personal reasons were honored.

5. Among the most legitimate complaints of pilots are the lack of promotion to captain, the reduction from captain to copilots. All pilots want to be captains. They want the authority (which is fast being diluted), the responsibility and the pay. Technological unemployment has been the main factor in this condition. The jets do more work with fewer crews. A jet pilot-hour can produce about four times the passenger-miles that a DC-7 pilot-hour can.

In one airline there are no pilots with World War II pilot experience now flying as captains. Copilots react to this varying ways. Some work harder than ever, some react with apparent indifference, while some eat their hearts out. As an example, one was relating his recurring misfortunes and general bad luck which he had begun to accept as normal. He stated that his luck was such that if all the women in the world were cut in half and reapportioned out to the men, he would surely get the half you would have to feed.

6. On some flights considerable time may elapse between meals for crew members—frequently up to eight hours or more. Once there was great stress on keeping food in one's stomach and keeping up the blood sugar level during approaches and landings. This

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This article is based on a speech made by Howard M. Cone at the Seminar on Aviation Medicine of the Guggenheim Center for Aviation Health and Safety, Harvard School of Public Health. Captain Cone made this speech to Dr. Ross A. McFarland's seminar in aviation medicine at the Wings Club in New York, February 1, 1961. He has had a distinguished career as an air line pilot, and he was in command of the aircraft which flew President Roosevelt to the conference at Casablanca. Captain Cone presented this talk on the first day of his twenty-eighth year as a pilot for Pan American.

seems to have been overlooked lately in the effort to economize and to provide first class service to the passengers.

Pilot union relationships

Whatever its sins, the union deserves the pilot's gratitude for the many benefits it has obtained for him and maintains for him. There are almost as many opinions at a pilots' union meeting as there are pilots. Mostly though, the aims are consistent within categories. The youngest men are concerned with keeping on the payroll or obtaining furlough pay. Most senior pilots aim for runs of reasonable lengths, reasonable time off, and a relatively full month of flying (a full pay check). There are some fantastic attitudes exhibited in a meeting that are not apparent during personal contacts. Sometimes the worst side of one's nature comes out at the union meeting.

Some pilots chafe under the decisions of the union and feel that they have been discriminated against: "It's a captain's union" or "The majority is made up of copilots; they run the union." Once a rather lighthearted, I hope, copilot offered this comment during a dull moment on a trip: "There have been hundreds of crashes and thousands of pilots killed, and the tragedy of it all is that none of them were senior to me."

There are a few fanatic agitators who want to strike—never mind what for, just strike. "Make the company unhappy; that makes us happy." What grudge or poison they harbor in their systems is difficult to understand. Is it a matter of body chemistry, and they can't help it? Are they frustrated executives that did not make the first team? What makes them spoil their own lives and as many others as they can? It is a mystery to me, and I am thankful that I don't share their ailment. Would it be wise, desirable or possible for airlines to attempt to spot such personalities during the hiring interviews and pointedly avoid hiring them?

Pilot to pilot relationships

It is remarkable how compatible the relations between pilots seem to be when one considers the stress, cramped quarters and fatigue the pilots sometimes undergo. Occasionally an unfortunate relationship will exist, and it behooves each one to extend himself to make the best of a bad situation. Actually I will not attempt a very difficult instrument approach if I feel that I do not have the copilot's complete cooperation. However, this happens very rarely. On the other hand, I have made some very difficult approaches and landings with the invaluable help of a cooperative copilot who inspired me to do better work than I am normally capable of doing. The flight engineer and the third pilot are important members of the team, and may contribute towards a nice, precise job or tend to detract from it.

As a group we have the greatest bunch of pilots in the world. Some of us should be a little more considerate of our fellows by not whistling in the cockpit or smoking when it bothers others, not punching or touching anyone to get attention, and by eliminating other little annoyances.

Pilot and FAA relationships

Have you ever tried to drive a car or drive a golf ball when you are angry, upset or distracted? It doesn't help in flying an airplane either. Some of the FAA policies of the past two years have appeared to be harrassment. "File a violation" seems to have been the watchword.

It is difficult to understand the requirement to remain strapped in one's seat for almost continuous periods of over nine hours. Why is there an FAA requirement to wear a mask and breathe oxygen when a great majority of interested and responsible parties believe it to be unnecessary and/or dangerous at certain altitudes? Pilots have been advised in the past to move around frequently to restore circulation and get the cobwebs out of their minds. Now we remain for hours with a tourniquet across our laps and a mask strapped across our faces. Why?

Public accusations of pilots have discredited the profession and make pilots appear as adult delinquents. This distorted view helps no one and can hurt many. One terrible penalty of these policies is that incidents and near accidents are bound to be covered up, if at all possible. The end result of all this is that in an attempt to tighten up

(Continued on page 23)

Urge military reservists to check pension dates

Captain Cleal, who so conscientiously brought this information on military pensions to our attention, was shot and seriously wounded in an airplane hijacking attempt. (See page 10.) This material was meant to supplement his article "A Personal Checklist" which appeared in the July, 1961, issue of this magazine. —EDITOR.

In a special bulletin to Pacific Airline Pilots, Oscar W. Cleal, Jr., Chairman, Pilots Retirement Committee, called their attention to an important pension deadline for Armed Forces Reservists. Because this information may be of value to many more ALPA members, the bulletin is being reproduced here:

The United States Government has always provided for members of its Armed Forces a broad retirement program. Armed Forces Reservists are eligible to retire with pay, upon application at age 60 if they have completed 20 years or more of satisfactory Federal service.

Retirement pay is computed at two and one-half per cent (2½) of basic monthly pay, multiplied by retirement points divided by 360.

The retirement program was amplified with a Survivorship Annuity Plan under the Uniformed Services Contingency Option Act of 1953. This plan gives you, as a member of the Armed Forces, the opportunity to provide for your immediate family in the event of your death after retirement as follows:

An income for your widow.

An income for your eligible surviving children.

An income for both your widow and your eligible surviving children.

The survivorship annuity plan is available to members of the Army, Navy, Air Force, Marine Corps, and Coast Guard.

To provide this benefit for your wife and children or both, you must first decide you want it, and then apply for it before the end of your 18th year of service as calculated for pay purposes.

Do not confuse the 18th year of service for pay purposes with 18 years of active or reserve duty or satisfactory years of service! The beginning date from which the all important pay purposes year starts may well be your date of Oath, First Duty Station, Commission, etc.

To be certain, obtain this information from your Reserve Officer Personnel Dept. or Naval District which maintains your officer records immediately! If you fail to apply in time, your pension rights die with you.

"French touch" goes with Caravelle UAL training

IN DEFERENCE to the Caravelle's French origins, the first group of flight officers to take Caravelle training at United's Denver base, donned bright colored berets and phony mustaches. (But by the time the picture was taken, only Second Officer J. C. Organtini still had his lip ornament.) Ground School Instructor Ed Hoffman holds the model plane.

United Air Lines photo

Eastern Air Lines photo

Captain John B. Whitted, (right) of 2021 English Lane, College Park, Ga., based in Atlanta, receives congratulations and silver bowl from Eastern Air Lines President Malcolm A. MacIntyre for services "above and beyond the call of duty." Captain Whitted was among a group of Eastern employees recently honored at a "Presidential Citation" dinner held in New York. His citation read: "with his 'Operation Spruce-up,' Captain Whitted has promoted a better looking, smoother running operation among Eastern personnel in Atlanta.

BRANIFF CAPTAIN NAMED DALLAS' "DAD OF THE YEAR"

Captain R. D. James received the "Dad of the Year" Award at a meeting of the Central Dads' Club in Dallas, last July.

Captain James, or "Bob" as he is more familiarly known to his fellow pilots on Braniff, received the award in recognition of outstanding performance in the Walnut Hill Elementary School Dads' Club.

The Dads' Club of Dallas raises funds for the purchase of supplemental equipment for their particular school. Bob's club sponsors a Boy Scout troop, an athletic team and in addition has purchased air conditioners and public address systems as well as other equipment the school board doesn't include in its support.

(It's "Hats Off" to ALPA members like Bob James who show that not only are they excellent air line pilots but strong supporters of the community as well!)

"DAD OF THE YEAR" Captain James with his family. (Right to left) His wife, Charlotte, Janet, Roberta, and Barbara. Captain James is in the Braniff Airways, Council 42, Dallas, Texas.

By CAPTAIN W. K. HOWELL, Chairman, Detroit Area Safety Committee

The need for a modern local service aircraft

Local service carriers need a new type of aircraft for their operations. Captain Howell gives his version of this craft.

THE need for a modern local service aircraft has been with us for a number of years. For reasons of economics there has been no development of aircraft of this type in the United States though several European manufacturers have such aircraft under development. As a local service air line captain I would like to express some of my views and opinions—the results of working in this field—to those persons interested in developing an aircraft of this type.

I shall make suggestions on the design features of such an aircraft and finally, the means for developing it.

Ramp level loading

The requirement for loading and unloading baggage, mail, and other cargo in an absolute minimum of time makes ramp level loading a highly desirable feature of the local service airplane.

A fast turn-around and minimum time spent on thru-stops will result in much faster service to the passenger. The primary reason people travel by air is to travel faster, spending the least amount of time en route. Six 10 minute stops en route is an hour's time to the traveler and one hour less productivity for the airplane as far as air line management is concerned.

Present day aircraft require the use of expensive ramp equipment to lift cargo to heights six feet or more above ground level. Initial cost of this equipment as well as maintenance and replacement costs must evenutally be charged to the traveling public.

Another desirable feature of ramp level loading is the ease of servicing the aircraft. Fuel and supplies are provided in a minimum of time. Passengers can deplane and enplane in a minimum of time with less chance of injury, especially for disabled or elderly persons, and small children. In the event of an emergency, ramp level loading is of great value because of ease and rapidity of passenger evacuation.

Integral loading stairs, considered mandatory equipment by most local service operators, would be shorter, of simpler design, and easier to maintain than present equipment.

An effort should be made to co-ordinate air cargo facilities with the rail and truck systems. Consideration should be given to standardization of the height above ground for the cargo loading level. The most practical level appears to be from 36 to 40 inches above ground level.

Slow approach speeds

We know that speed has much to do with injury and survival in airplane accidents. Extensive research indicates we could expect a survival factor of near 100 per cent on accidents—where the aircraft strikes the ground—if we could lower the approach speed to around 60 knots.

Considerable effort is being directed toward the prevention of accidents in the terminal area; the records indicate 80 per cent of our accidents are in this area. The slow approach and landing speed would do much to increase the level of passenger safety.

Lowest possible operating minimums

Most airports presently served by local service carriers have weather minimums of 400 ft. ceiling height (distance between the ground level and the base of the clouds), and one mile visibility. Assuming that the pilot is directly in line with the runway, and is looking in the right place at the right time, he would see the end of the runway one mile from the airport.

With an approach speed of 120 knots, he has 30 seconds to get the airplane from its present position to landing speed and configuration over the end of the runway. On the other hand, at 60 knots approach speed, he would have a full minute from the mile out position in order to do the job.

We could expect to immediately lower landing minimums to ¾ mile visibility with an airplane with the slower approach speed capability.

Circling weather minimums

When the landing runway is not in line with the radio facility approach aid, we must circle around the airport to land on the runway most nearly aligned with the wind.

Present day aircraft speeds while circling are 120 knots. The radius of turn being in direct proportion to the speed of the aircraft, we find that the faster the airplane, the greater distance we travel from the airport. One and half miles visibility is the usual weather minimum to circle the airport.

Again, with the 60 to 70 knots approach capability, we could circle airports with ¾ miles visibility. Actually, with the short landing distance airplane, we would not have to circle at all in most instances. An instrument landing executed with a 30 knots tail wind would not equal today's aircraft landing ground speed.

Taxi time

Due to the fast approach and landing by the local service aircraft presently in use, much time is used in taxi-

FAIRCHILD F-27 or "Friendship F-27" represents one European approach to local service aircraft design. About 130 F-27s are now flying on the world's airlines.

Fairchild photo

Captain Howell, the ALPA Region III Area Safety Chairman, gave a speech on which this article is based, at the annual banquet of the Institute of Aero/Space Sciences, Tri-State College, Angola, Indiana, June 10, 1961.

ing from the far end of the runway to the terminal. The slower landing and take off speed would reduce the required taxi time; thus effecting a large reduction in enroute time at a considerable saving to both the passengers and the airline.

Noise abatement

We know that 1,200 to 1,500 ft. altitude is the critical distance to maintain to avoid an excessive noise level on the ground. With the slow approach and climb out air speeds, we find that the aircraft noise problem is all but eliminated. These speeds permit the pilot to both climb and descend at steep angles where necessary without unduly compromising safety.

Single point refueling

Present day aircraft require top of the wing refueling requiring special ladders for men to get on the wing. There are time consuming grounding procedures to prevent static sparks, and to prevent servicing delays, two men are usually needed. Today, the average refueling time is 10 to 15 minutes.

Single point refueling has been used on our military interceptor jet aircraft for years because fast turn around time is extremely important. It is very important too that the local service aircraft be designed to refuel in less than three minutes.

"Carry on" luggage capability

Countless passengers have found themselves in the awkward position of arriving at their destination only to find their luggage has missed a connection at a transfer point.

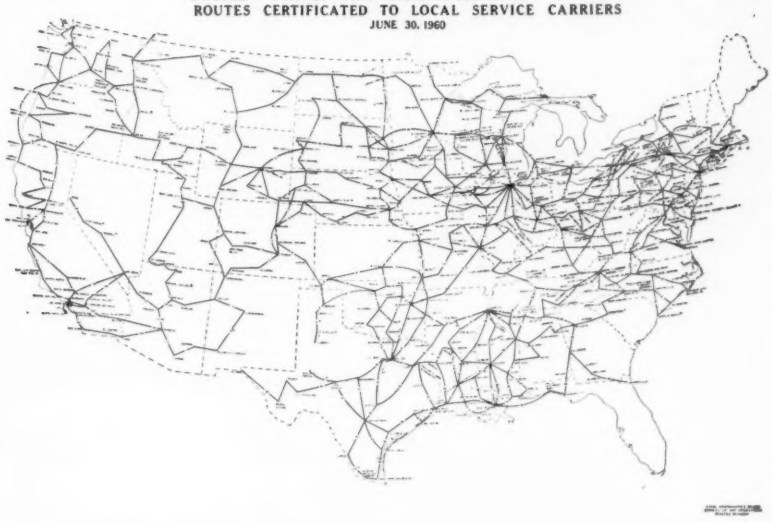
Business men have arrived on time for a meeting only to find their briefcases did not make it, thereby cancelling a business meeting which may have cost their companies thousands of dollars to arrange—not to mention other losses due to cancellation.

Daily, more people carry their own luggage, or use airport porters to the "carry on luggage racks" on board airplanes. This is one sure way of not losing luggage or having it damaged.

Contrast this with the losses suffered by air lines for compensating passengers for lost and damage luggage; losses which may mean the difference between profit and loss for the line. Carry on luggage facilities would also reduce the number of personnel at the station.

Carry on luggage space that would be adequate for capacity loads is a necessity. A desirable feature in an aircraft would be a design in which space normally used for cargo could be easily converted to luggage space.

UNITED STATES AIR TRANSPORTATION SYSTEM
ROUTES CERTIFICATED TO LOCAL SERVICE CARRIERS
JUNE 30, 1960



Selected Indices of Growth

	1950	1960
Total Cities Served by Local Service Airlines	369	547
Cities Served Exclusively by Local Service Airlines	195	334
Unduplicated Route Miles	24,769	46,477
Planes in Service	128	302
Plane-miles Flown Daily	90,470	254,000
Seat-miles Available Daily	1,641,500	7,367,000
Employees	4,795	12,295

Courtesy Air Transport Association of America

Convertible cabin

Movable partitions should be designed into the aircraft to permit variations in passenger/cargo loads. Seats mounted or rails or slides to permit variable and high density seating and easy movement or removal seems desirable. Concealed tracks should be designed into the overhead area to permit easy handling of heavy cargo by an overhead ceiling lift.

Another desirable feature would be a design provision for a complete changeover from passenger to cargo, troop carrier, or hospital type air evacuation for litter patients.

Speed brakes

Experience has shown that aerodynamic "speed brakes" are needed to take advantage of maintaining enroute speed as long as possible. This type of brake is quite simple, easily maintained, and is considered a great deal more necessary on the frequent stop operation than the long trips. Another added advantage is the capability of reducing speed quickly when encountering turbulence or emergency situations when reducing speed quickly is essential.

Integral electrical power

It is a near necessity that present day aircraft supply its own electrical power during ground operations. The number of airports served by the local service operation makes the purchase and maintenance of ground power units at each airport a costly proposition. Electricity for engine starters, cabin heating, cabin cooling, food and beverage refrigeration, as well as other electrically operated units indicates the need for a small, efficient, built-in power unit. Such units are presently available

and aircraft should be designed to incorporate them.

Fire inerting system

It will be necessary to include a fire inerting system in this aircraft. An investigation revealed that of the airports the local service airplane serves, 57 per cent have no fire protection apparatus, 35 per cent have some protection, and 8 per cent have good protection. Fire inerting systems have been designed and tested that will prevent and extinguish fires at the time of impact. The requirement for public safety demands that the fire inerting system be provided.

Passenger appeal

It has been said that a railroad box car would fly if enough power were put on it. The purpose of the ideal local service aircraft is to carry passengers over relatively short distances—80 to 100 miles—to connections with air lines serving more distant points. There are secondary purposes: carrying cargo, mail, and express, and developing future business. To appeal to air passengers, this aircraft must look safe, solid looking, fast, and reliable. An attractive design that will gain fast public acceptance is a very important feature.

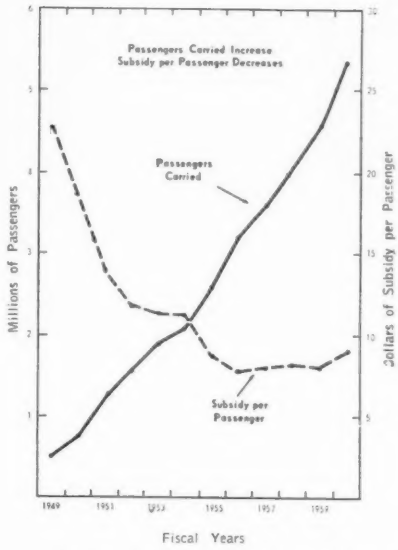
Performance requirements

Experience gained thus far in local service operation would indicate the present average distance between stops is 80 to 90 nautical miles. This establishes the requirement that an airplane operate profitably over a 90 mile segment with a 50 per cent load factor.

The local service industry does not agree as to the number of seats required for passengers. This figure has varied over the years from about 25 to 45 and is fairly stable now at 52 to 60 passengers. This higher capacity should permit a "no reservation" commuter service on many routes.

As for speed, anything over 250 knots would do the job. The greater the speed capability—without sacrificing the other requirements—the faster passengers will arrive at their destinations. Competition between available designs should do much to solve this problem for us.

The same is true of power requirements. We need an aircraft that is capable of accelerating from take-off to climb speed, and climb to cruise speed, quickly.



Courtesy Air Transport Association of America

Cabin noise level and the aircraft noise are important factors, and a possible answer may be in the aft mounted turbo fan jet engine.

A range of 700 miles would seem adequate with provision for external tanks or other means of providing fuel, should be engineered into the aircraft.

Additional features

Pressurized cabin, anti-icing systems, weather radar, communications and navigation capability, good cockpit and cabin visibility, bird-proof windshields and means for rapidly decelerating the aircraft on the ground are all modern aircraft requirements.

Aircraft development

The difficulty of developing this model local service aircraft is mainly a problem in financing. The local service air lines depend on federal subsidies through mail payments to keep their heads above water now. Private investment capital has not been attracted to such an investment. Three or four airplanes of this design have been developed by European countries; however, they have not been acceptable to United States carriers. One would have to be a better economist than myself to understand how they can finance such developments and we cannot.

Sales potential

In our country the trend in thinking has been toward the regional airports

(Continued on page 22)

AMF photographs

CAPTAIN HOWELL'S ideal local service aircraft is adaptable to military transport needs. He suggests that the loading ramp height be standardized and the cabin be readily convertible from passenger to freight. A step in this direction has been made by the Air Force with an aircraft loading vehicle (*above*) which can vary the height of the platform to register with the plane's floor. This "Universal Cargo Handling System" loads cargo on flat pallets held down by nylon netting secured to tie-down rings (*below*). The roller conveyors and guide rails—universally applicable to all four existing Air Force cargo carriers—allow fast, easy loading. The pallets are secured by remotely controlled rail restraint locks while the aircraft is in flight.

Reprinted from *Boeing Airliner* magazine, May, 1961

Jet Engine Vibration

RECIPROCATING engine malfunctions are easily detected when excessive vibrations are the forerunner of major damage. Jet engines normally have little unbalance and operate smoothly; therefore, special instrumentation is required to indicate those vibrations due to abnormal unbalance. An increasing vibration, though initially small, may indicate progressive deterioration of the engine. In-flight vibration monitoring equipment will indicate increased amplitudes of motion caused by slight damage to a rotating engine part. Thus, early detection of the power plant fault allows a minor repair correction rather than a costly major overhaul.

The gas turbine or jet engine consists mainly of one or more relatively large turbine wheels and numerous compressor stages rotating at relatively high speeds throughout the normal operational range. The many hours of engine experience by commercial airlines, with inspection of failed engines, has indicated that engine life can be extended and some costly engine failures eliminated by close control of engine balance, or vibration, to see that it does not exceed normal limits. Vibration indicating systems are an aid for maintenance convenience rather than a flight safety requirement. The vibration limits may be determined by tranducers or pickups (Fig. 1) on each engine.

There are many mechanical deficiencies which can cause excessive engine vibration, among which are: bird ingestion, main rotor and turbine shaft bearing failure, excessive turbine blade creep, and improper balance of assembly at manufacture or overhaul. The primary concern is not with design limits but with any increase in the amplitude of vibration at the selected transducer locations, which may be abnormal and rapidly increasing in nature to indicate a progressive engine failure.

The usual engine EPR, RPM, EGT instrumentation, will indicate a majority of malfunctions. In addition, vibration symptoms may be heard in the cockpit or felt through the thrust lever linkage; the mechanics call it "throttle-buzz." It is for that limited percentage of engine malfunctions which are not otherwise detected that a vibration indication system is useful.

Simply stated the airborne vibration system performs as follows: Engine motion shakes a permanent magnet within the pick-up and induces a small current into a coil winding. The signal produced is transmitted through shielded wiring to the amplifier which is installed in the electrical instrument racks. Here, the signal is amplified and transmitted to the Flight Engineer's Panel to produce a gage indication. Indication quantities are generally either in mils double amplitude or in relative amplitude meter readings. High or low frequency bands may be monitored to indicate whether the readings are caused by the low speed or the high speed rotor system by means of a filter selector switch.

Required for maximum effectiveness in addition to the equipment are "vibration-conscious" Flight Engineers who will regularly read and record indication data, scan past vibration logs, and make recommendations to reduce

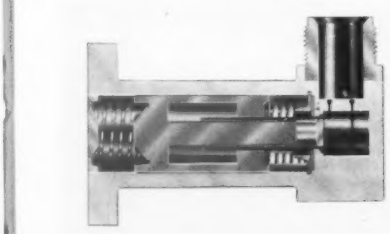


FIG. 1—Pick-up or transducer mounted on turbojet engine bracket. The device converts motion to an electrical signal for a gage indication. Engine vibration causes a permanent magnet to move through a coil winding which creates an electrical signal.

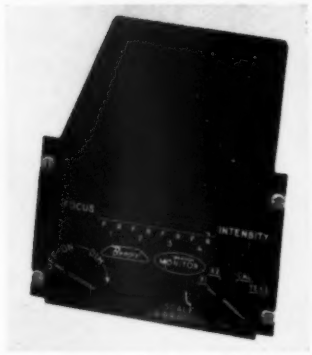


FIG. 2—Continuous vibration monitoring of all pick-up locations is a feature of oscilloscope type instrumentation.

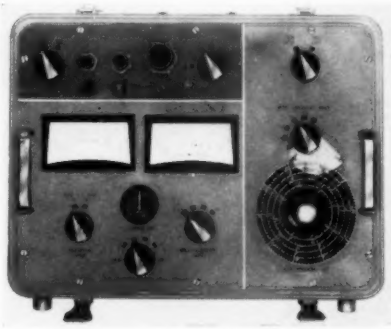


FIG. 3—A portable vibration analyzer (Sperry) for maintenance checks of excessive engine vibration after the airborne system has indicated an impending malfunction.

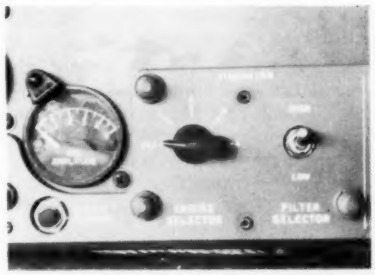


FIG. 4—Single vibration indicator dial with selector switch for the four engine pick-up locations.

Boeing Company photos

power as necessary on suspected engines to reduce possible damage. Even though an extensive and refined system can detect a sudden increase in vibration amplitude, it cannot pre-determine the critical level, flash a warning light, sound a horn, and automatically shut the engine down. Nor is the establishment of a red line maximum marking on the dial face as a "go-no go" gage a proper use of the instrumentation.

One reason that a maximum magnitude of vibration amplitude may not be easily established is due to the various types of equipment installed such as Sperry, Bendix, Consolidated, Phillips, and others. The exact location and method of attachment of pick-ups also induce variations in gage readings. The specific vibration limit, as to relative magnitude, must be determined from experience with a given engine series and model, aircraft engine installation, and vibration instrumentation system.

Vibration indications during cruise are notably uniform and constant. Here a gage reading is of considerable significance in predicting when a jet engine may develop early distress in one of its rotating parts. The transitory stages of airplane flight; water-injection takeoff, maximum power settings, and wing deflections experience in climbout usually indicate a vibration condition well beyond the usual readings.

One airline, a pioneer in the use of jet engine vibration systems, has stated their feeling as, " . . . the clearest indication of abnormal vibration is a sudden sustained increase regardless of indicated level." Thus, vibration instrumentation may determine engine malfunctions primarly by a change in amplitude indications.

Pick-ups (Fig. 1) may be located on the inlet and diffuser cases of each engine. The Flight Engineer's Panel may be arranged with one gage for each engine; or be limited to one indicator (Fig. 5) with a means for selective switching. Continuous monitoring is possible with multiple indicators. An oscilloscope makes simultaneous indication and comparison of all engines possible. (Fig. 3).

One airline prefers the one pickup per engine arrangement with a single indicator gage and selective switching. When excessive engine vibrations are noted in flight, further ground checking is conducted with additional temporarily installed pick-ups to pinpoint the trouble location and extent.

Maintenance personnel use the turbine vibration analyzer on the flight line to diagnose engine trouble by selective tuning and the component or accessory which is at fault frequently may be localized and identified. This pin-pointing of trouble considerably expedites necessary maintenance and determines whether the engine or merely one of the drive accessories must be changed. A portable unit vibration analyzer is shown in Fig. 4.

Boeing assists those customer airlines desiring vibration instrumentation incorporated in the production of their jet airliners. The choice of a specific manufacturers' equipment is determined by the customers. The vibration transducer locations on the engine, and the frequency filtering used depend on the specific engine and details of the monitoring system. In many cases provision is made (shielded wiring) during airplane manufacture for later equipment installation by the customer.

A proper monitoring of the engine vibration system may allow detection of minor defects which if not otherwise noted might permit the engine to deteriorate to a condition requiring a major overhaul. An increasing number of instances are being added to the record where vibration instrumentation has enabled malfunctions to be detected, and where subsequent action was taken in time to realize a substantial saving in maintenance costs. Of every hundred engines removed for all causes approximately one change is due to vibration indication alone. Two airlines report the following: An early detection of malfunctions and partial overhaul for engines with only 200-300 hours since major overhaul may allow repair for less than $4,000. Should unusual vibration be undetected and progressive deterioration be allowed to continue, the resulting major engine overhaul may cost as much as $30,000.

The total installation cost of a multiple pick-up system with four indicators is appreciable and adds approximately 70 to 80 pounds to airplane empty weight. Engine maintenance savings and convenience must be balanced against the cost and weight penalty of this added instrumentation. Maximum effectivity appears to lie in a minimum airborne system which, with frequent monitoring and data logging by the flight engineer, will indicate when to conduct a thorough vibration analyzer ground check.

Begin study on problems and effects of sonic boom

Methods of predicting and minimizing effects of the sonic boom will be the subject of a coordinated research program by the National Aeronautics and Space Administration, the United States Air Force, and the Federal Aviation Agency. The study, scheduled to get underway in July, will include a thorough investigation of the sonic boom phenomenon by technical teams from the three agencies and will continue about six months.

The research will be divided into four projects covering specific areas. These are: (1) Sonic Boom Generation and Propagation; (2) Design Considerations to Minimize Sonic Boom Intensity; (3) Operational Procedures to Minimize Sonic Boom, and (4) Effects of Sonic Boom. Objectives of the research program are to study the problem to minimize effects of the sound waves.

With the projected development of the supersonic commercial airliner, designed to cruise at speeds in excess of 2,000 miles per hour, research on the sonic phenomenon is given impetus.

The sonic boom, which can be simply defined as an explosion-like sound, is caused by a shock wave generated by an aircraft flying at supersonic speed. It occurs when an aircraft moves through the air at a speed which exceeds sound and generates pressure waves. The waves attain the shape of a large cone extending downward and rearward from the plane in all directions. As long as the plane exceeds the speed of sound a sonic boom is dragged continuously along its flight path, extending to the earth downward and outward on both sides of the flight path, to a distance which depends upon the altitude of the plane, its configuration and other factors. The noise is loudest directly under the path of the plane and decreases in intensity as it extends out toward the sides. The sound waves are continuously generated until speed is decreased below that of sound.

The phenomenon of the sonic boom, first discovered in 1950, has been investigated by scientists and engineers since that time. Much has been learned but many questions remain. NASA, USAF, FAA and the aviation industry have teamed together to carry out continuing research in the hope that the phenomenon which apparently cannot be eliminated, can be minimized.

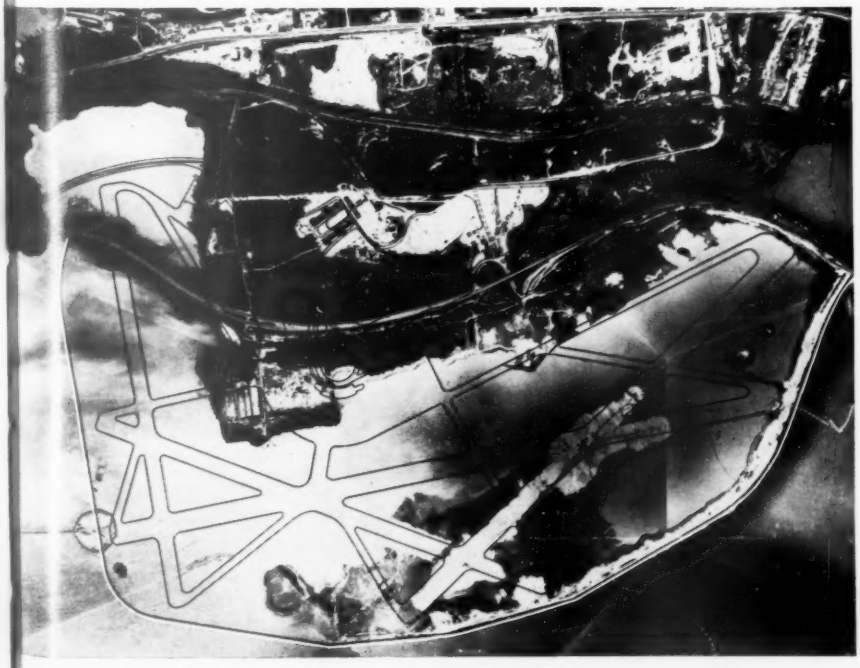
In carrying out the flight test program, it is planned to utilize the B-58, the world's first supersonic bomber, the F-104, F-105, and F-106, supersonic aircraft.

Washington National Airport

--in operation twenty years

Federal Aviation Agency photo

Pre-construction view of Washington National Airport showing Potomac River and swampland reclamation for airport complex.



JUNE 16, 1961, was just another busy day in the life of Washington National Airport, the fourth busiest airport in the country, with approximately 1,000 aircraft landing or taking off from the airport's runways.

But the date marked without fanfare the 20th anniversary of operations and service to the Nation's Capital and, during the day, it is expected that the 4,116,562nd aircraft to use the airport will taxi down the runway, bringing the 20 year passenger total to over 48,200,000.

The first scheduled airliner touched down at Washington National on June 16, 1941, to mark the official opening when the airport was dedicated by President Franklin D. Roosevelt.

Today, the airport stands on an area which had been Potomac swamp and river bed, created through the pumping of 20 million cubic yards of sand and gravel from the river bed.

The first airport in the country to provide an instrument landing system, Washington National is one of the world's finest airports and has been a proving ground for modern aviation.

During the first six months of its

operations, some 344,000 commercial airline passengers passed through the gates of the airport. In 1960 the number reached 4,800,000, exceeding the combined passenger total for the first six years of airport operations.

The increase in air traffic at Washington National Airport shows no sign of subsiding. The 43,000 operations (landings and departures) during the first six months, has increased steadily over the years, and, last year there were almost 300,000 operations.

The airport's expansion is a result of both the growth in aviation and the metropolitan area which it serves. The Washington population of approximately 900,000 has been expanded to more than two million, in the two decades from 1941. This has called for a continuing program to expand and modernize the facilities, and the growth of the airport activities has been reflected in many ways . . . facilities and navigational aids . . . "daylight" floodlights on the instrument equipped north-south runway . . . additional taxiways and high-speed runway turnoffs.

A new north terminal building, completed in the fall of 1958 with nine airline gates, provides additional facilities for baggage, ticket counters, and parking space.

Among the improvements being planned for the future to better handle the increased traffic and serve the aviation public is a new taxiway, paralleling the NW/SE runway, to eliminate present delay in ground operations, expanded and improved apron areas to eliminate one-way taxiing and provide for safer movement of ground equipment, and if studies prove it advisable, lengthening the instrument runway.

Blast fences to protect people and property, passenger concourses which will be enclosed and heated, a new enlarged terminal baggage room, and a modern sewage treatment plant, are other programs underway.

The more than 660 acres which make up the airport, contain the facilities of a modern city. The terminal building includes restaurants, a post office, offices, lobbies, waiting rooms, news stands as well as the special facilities of an airport — the control tower, weather station and ticket offices, etc.

The airport's four runways and taxiways are equal to 30 miles of four lane highways. There are in addition 12 miles of actual roads within the airport and 31 acres of parking space.

The Federal Aviation Agency provides a staff of 270 airport employees (exclusive of air traffic control personnel) to provide round-the-clock service, seven days a week. Operations and safety personnel maintain fire and rescue apparatus and other facilities. Airport police protect life and property and maintain order . . . engineers and technicians keep navigational aids and communications equipment operating at peak efficiency . . . and administrative specialists conduct the daily business of the airport which totals almost four million dollars a year.

Turbine power aircraft gaining, still more piston

	Ordered			*Delivered*			*Remaining to be delivered*	
TURBO JETS	*Before 1960*	*During 1960*	*Total up to 31.12.60*	*Before 1960*	*During 1960*	*Total up to 31.12.60*	*1961 & 1962*	*1963 & after*
Boeing 707	149	13	162	71	77	148	14	—
720	46	45	91	—	22	22	69	—
Caravelle	59	50	109	15	43	58	51	—
Comet IV	42	13	55	27	18	45	10	—
Convair 990 (600)	34	3	37	—	—	—	37	—
880	51	—3	48	—	13	13	35	—
Douglas DC-8	150	7	157	17	85	102	55	—
Boeing 727	—	80	80	—	—	—	—	80
DH-121 Trident	24	—	24	—	—	—	—	24
Vickers VC-10	35	10	45	—	—	—	—	45
Total								
TURBO PROPS	590	218	808	130	258	388	271	149
Britannia	57	2	59	57	2	59	—	—
Electra L-188	168	2	170	122	40	162	8	—
Friendship F-27	105	25	130	76	17	93	37	—
Vanguard V-900	40	3	43	—	20	20	23	—
Viscount V-800	125	11	136	125	5	130	6	—
V-700	259	—	259	259	—	259	—	—
Total	754	43	797	639	84	723	74	—
CARGO TURBO PROPS								
Argosy AW650	5	2	7	—	1	1	6	—
Canadair CL44D	17	—	17	—	—	—	17	—
Total	22	2	24	—	1	1	23	—

**Notes: (1) The numbers given are estimated on the basis of the best available information.*
(2) For a lack of information, aircraft built in non-ICAO States are not included in this Table. It is known, however, that a small number of Tupelov 104's and Ilyushin 18's have been delivered to airlines of Contracting States.

By the end of 1960 the world's air tranport fleet was made up of the following types of aircraft:

Turbo-jet	388
Turbo-prop	723
Piston-engined (4 motors)	1,621
Piston-engined (2 motors)	2,282
Total	5,014

There were still far more DC-3's (1,296) than any other type. But, on the other hand, the jets, while being only 7.7 per cent of the fleet numerically, accounted for approximately 30 per cent of the total productive capacity. The turbo-props, 14.4 per cent numerically, offered 20 per cent of the capacity, and the piston-engined group, representing 77.9 per cent of the total number, provided only 50 per cent of the capacity.

With the Flight Attendants

LCA flight attendants vote for ALPA S&S 46 to 2

The best measure of popularity is in the ballot box. When asked who shall be your collective bargaining agent, flight attendants of sixteen air lines have voted an overwhelming preference for the Steward and Stewardess Division of ALPA. The votes as tabulated by the National Labor Relations Board in this "popularity" contest now show:

Airline	ALPA	Other
Braniff	214	8
United	891	183
Pacific Northern	19	13
West Coast	53	0
Alaska	22	2
Mohawk	51	0
Capital	315	5
Piedmont	42	1
North Central	98	7
Continental	116	41
Ozark	45	22
ONA	(Voluntary Transfer)	
Frontier	41	11
National	89	75
Allegheny	72	0
Lake Central Airlines	46	2

There have been three additional elections which the S and S Division did not win.

The first of these was the NWA election held in July. Contrary to propaganda disseminated by the Transport Workers Union, ALPA did not lose this election for the simple reason that it was not on the ballot—having made a decision not to participate. However, ALPA did receive 15 write-in votes.

The remaining two elections were held on CBA and WAL. ALPA lost the CBA election by a nine to six vote. The WAL election was lost by the count of 148 to 71.

Don't sit back and wait — your support is needed!

The flight attendants of sixteen air lines have chosen the Steward and Stewardess Division of ALPA to be their collective bargaining agent in the recent representational elections because the Association assured them, among other things, of non-interference from the pilots, and a democratic organization responsible to its members only.

Yet, we have heard many flight attendants say, "Let ALPA show me what it can do for me before I become a member." Do you realize the significance of this statement? It means that you want the pilots and your officers to tell you what you will have and what you will do. Did you vote for this?

ALPA has supplied your representatives with the necessary services to properly carry out the members' desires. The pilots have offered and given support and advice to members in the past and will continue to do so in the future. Steward and Stewardess Division members and their representatives are responsible for determining what will be done and how it will be accomplished.

By joining ALPA, you can keep yourself informed through Association literature. You have the right to discuss problems and assist in making decisions at meetings. You also have the right to vote for responsible people to carry out these decisions.

Don't let others make important decisions for you. Non-members have not earned the right to demand action. Only by accepting your responsibility toward yourself and your fellow flight attendants do you gain the right to speak up at meetings and to vote. Exercise these rights! **Join ALPA!** Then speak as a member and vote as a member.

If you do not have a membership application, contact your Local Council Chairman or write to ALPA—S & S Division, Membership Department, 55th Street and Cicero Avenue, Chicago 38, Illinois.

AA adds week to training program for stewardesses

American Airlines is giving student stewardesses an additional week of intensive training so that they will offer passengers better service on Astrojets and on other airliners in its fleet according to a company announcement.

The million-dollar American Airlines Stewardess College at Ft. Worth, Texas — built by the company two years ago — now spends 6½ weeks training students to be stewardesses, all at company expense. The number of subjects, ranging from the theory of flight to how to remember names, has been increased from 77 to 100 because of the jet age.

American hires and trains about 850 young women each year, has about 1,500 flying the line.

VACANCIES

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B.W.I.A. invites applications for Flight Hostesses for immediate employment. Essential qualifications:

1. Single—aged between 20 and 28 years.
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3. Attractive, well groomed and well spoken with pleasant personality.
4. High standard of education.
5. A good swimmer.

—Advertisement in the Antigua Star (West Indies)

United Air Lines photo

***AIRPORT ART**: Smocks and berets add a Parisian touch to uniforms of stewardesses who fly on the French-built Caravelles. Painting the scene at Chicago's O'Hare Field are Betty De Long (left) and Ann Cohen.*

Halaby issues directive on hijacking precautions

N. E. Halaby, Administrator of the Federal Aviation Agency sent the following telegram to all U. S. air carriers on August 3, 1961:

"In light of most recent aircraft hijacking attempts it is essential that we step up additional precautions on a nationwide basis. You should therefore take the following action:

1. Senior station or traffic personnel should closely observe all enplaning passengers and be in touch with and report to local law enforcement officials any individual suspected of carrying concealed weapons or intending to commit crimes aboard aircraft. This senior airline official should have the authority and responsibility to hold any flight on the ground until he believes that the flight can be completed in a normal manner. Individual judgment must be used as to degree of inspection but last three attempts indicate that restricting this inspection only to aircraft operating into and from Florida is not sufficient.

2. The United States Government is offering a reward of ten thousand dollars for information leading to the arrest of persons attempting hijacking. Wide publicity will be given to this.

3. For your information the Federal Aviation Agency has adopted regulations against carrying concealed weapons on board aircraft and you should meet any passenger resistance by indicating you have been asked to assist in enforcing these regulations, which are as follows:

(a) No person shall assault, threaten, intimidate, or interfere with a crewmember in the performance of his duties aboard an aircraft being operated in air transportation: nor shall any person attempt to or cause the flight crew of such aircraft to divert its flight from its intended course of destination.

(b) Except for employees or officials of municipal, state, or Federal Governments who are authorized or required to carry arms and except for such other person as may be authorized by an air carrier, no person, while a passenger aboard an aircraft being operated by an air carrier in air transportation, shall carry on or about his person a concealed, deadly, or dangerous weapon.

4. All precautions should be taken to prevent access by unauthorized persons to the flight deck. We believe that this can best be served by securing the cockpit door so that sole control of access is from the cockpit. One example, in view of present door structure, would be the placement of a barrier or bolt on the cockpit side of the door. Another would be to deny combination or key to anyone other than the flight deck crew.

5. You are authorized to provide side arms to crew members only when they have recent training and demonstrable proficiency in their use.

6. The Government is considering possible additional measures and you will be kept informed. Your full cooperation in this difficult operational matter will be appreciated.

Veteran flyer named new TTA chief pilot

Trans-Texas Airways has named Captain T. K. Lee chief pilot for the Houston-based airline, according to H. E. Erdman, vice-president, operations - planning. Captain Lee, who started with TTA during the first month of operations in 1947, is a native of Minot, North Dakota, where he began barnstorming back in the 1930s. Lee has logged over 21,000 in the air with TTA and previous aircraft companies.

Capt. T. K. Lee

FISH STORY—Mrs. Cecilia Jann Polek, secretary for Council 3 and 45 for nearly ten years, flew to Florida on TWA for a vacation and while there, won the jackpot for catching the biggest fish of the day. (Picture supplied by J. L. De Celles, Chairman, TWA-3.)

The need for . . .

(Continued from page 16)

which can serve more than one community with a single, well-equipped airport. It is therefore not much of a selling point to provide aircraft with short field capabilities because of airport inadequacies.

In order to reduce the initial cost of this airplane as much as possible, foreign markets should be considered. The more airplanes sold, the lower the unit cost. Many operators in other countries need an airplane with short field capabilities.

Defense requirements

One means of development of a modern local service aircraft would come from the military which would require civilian transport fleet that could be called into active service on short notice for use of military support and a civilian evacuation airlift.

Any global conflict will not be a "massive destruction" type but rather a precise selection and destruction of targets which probably have already been selected. The reconnaissance aircraft, fighter-bomber aircraft, troop carrying helicopter, and the "top cover" or fighter interceptor to maintain control of the air over the battlefield will be the primary air weapons.

Whether the combat phase of a nuclear war lasts three days or three hundred days, the need for transport aviation will grow almost beyond present comprehension. The recent reemphasis on the modernization of the military air transport service indicates that this need is acknowledged. The need, however, has been limited by our stated requirements for air transport strictly for the military support aspects, and only the opening phase of a conflict at that.

Past experience

A review of the extensive and immediate use of the C-47 (DC-3) type aircraft in the early days of World War II should serve as a reminder of the immediate need for available air transport planes at the outbreak of any hostilities. A global attack at present would completely bankrupt our transport aviation resources. It is clear that no single metropolitan area is prepared to handle the casualties resulting from a nuclear attack on it. The medical and transportation facilities of the country must carry the burden. Surface transportation will be a state of chaos. The only hope lies in the rapid aerial evacuation to hospitals a hundred or

more miles from the scene of the disaster.

Between the active Air Force and the Air National Guard there are today less than 75 "air evac" aircraft with trained crews.

National support

In the area of air evacuation alone we see a need for vastly increased air transport resources. When we study the requirements for cargo lift into devastated areas and the need for air transport for troop deployment, the need for increased transport capability is truly staggering. The federal government has already poured millions of dollars into local service subsidy payments. This is necessary mainly because we do not have an aircraft that is designed for the job we are doing.

National support of a local service airplane development project would:

1. Provide our country with a more efficient transportation system which would encourage industrial and economic growth.
2. Provide for a very large part of national transport fleet in time of an emergency.
3. Enable development of the air cargo and air freight business which is practically untapped at most of the local service points.
4. Reduce and eventually eliminate subsidy payments to local service carriers.
5. Reduce the cost of air transportation which would eventually be passed on to the passengers. Today's air travel is still costly for the average U. S. citizen.
6. Provide for a fleet of air evacuation aircraft in the event of a national emergency.

PILOTS, AS ONE . . .

(Continued from page 12)

operating procedures and effect safety we end up with people suspicious, scared, angry and distracted.

We have had a relatively poor record in the airline industry during the past two years that has been coincidental with a period of general unrest, controversy and strikes. It seems that many people can be charged with responsibility for contributing to such an unhealthy climate. Could any of these accidents be related to this period of distracting working conditions? It appears that we need a healthy clearing of the air, to restore mutual respect and confidence, and to redirect our energies and talents to getting the jets from one place to the other in one piece.

Doctor and pilot relationship

Probably we can agree that mutual confidence and trust between pilots and doctors are necessary before the doctor will be able to help his patient. Pilots are people with problems and fears, and they sometimes need an understanding ear. Whom can they trust? How far?

Example 1. A pilot voluntarily reported a blackout he experienced while driving an auto. Subsequently he was cleared medically in all respects except for his voluntary report. Right or wrong, he is still denied the medical license to fly again. What is the lesson here to other pilots? Hide what one can? Seek confidential medical help? Tell the truth, but not all the truth?

Example 2. Years ago a few military reserve pilots reported to a base for active duty. The doctor conducting the physical exams resorted to unusual and exhausting eye tests. He was able to fail several pilots with these tests, and was quoted as saying it was unfair for these pilots to receive more pay than he did. His findings were reversed by superior officers, and the men continued with their active duty. Some of these pilots carried away with them an unreasonable fear of examining doctors that lasted for years.

Example 3. The recent FAA requirement that pilots list their auto traffic violations on their physical exam application seems to make sense. Does an habitual auto traffic violator indicate that he will also be an air traffic violator? Maybe we should know the answer to this. What might the pilot's reaction be to this method of investigation? Does it build peace of mind, mutal confidence, respect and cooperation?

Example 4 is the rescinded requirement that pilots must authorize their personal doctors to divulge their records to the FAA. Would such a requirement cause some pilots to secretly harbor troubles, real or imagined, rather than seek help and thereby make them a matter of public record? What refuge is left for a pilot to have a frank and confidential consultation on what may be bothering him? The consequences here seem positively dangerous.

Of course, the doctor has a responsibility to protect a pilot from himself, and the airline and the public from a dangerously deficient man. Where is the line between offering personal consultation and help, off the record, as against covering one's self by making the problems, significant or not, a matter of record? You gentlemen will not be troubled by making such decisions, as they are a normal and regularly experienced part of your work. However, these problems may trouble a pilot.

Finally, I would like to repeat that a valuable prerequisite in your dealings with pilots is to build and maintain a relationship of sympathetic trust and confidence. May I say that it has been my good fortune to have dealt almost entirely with doctors who have gained and held my confidence, and I believe that it has worked to our mutual advantage.

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- Mackey
- Mohawk
- New York
- North Central
- Northeast
- Northwest
- Overseas National
- Pacific Northern
- Pan American - Gra
- Piedmont
- Riddle
- Seaboard & We
- Southern
- Trans - Canada
- Trans Caribbean
- Trans - Texas
- Trans World
- West Coast
- Western